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ABSTRACT

Contained are units on nutrition that have been prepared and tested by several elementary teachers, elementary supervisors, and school food service supervisors. The units do not follow a set format. Typically, the aim of a unit is first stated, followed by concepts to be developed, and the description of activities for the unit. Sometimes there is a list of materials, including books, films, and suggested bibliography of periodicals and pamphlets. Frequently, activities are suggested that correlate with other subjects, such as science, language arts, social studies, mathematics, and physical education. In a few units, ways of evaluation are also suggested. The writers of this publication suggest that whenever possible, cooperative projects and demonstrations should be arranged with the school food service supervisor to be carried out in the school dining room or school food service preparation center. The units are designed to provide children with concrete experiences in the study of nutrition and related subjects. (BR)

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UNITS IN

# NUTRITION

for the ELEMENTARY SCHOOL

SE 008 241

ED038300

# Units in Nutrition for the Elementary School

Compiled by

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# UNITS IN NUTRITION FOR THE ELEMENTARY SCHOOL

## FOREWORD

The child learns about food, nutrition, and menus through many varied learning experiences. Thus, the classroom and the school lunchroom become laboratories for these activities. One of the contributing teachers states in her evaluation, "The entire unit was successful because the children were working with something real." Nutrition becomes real when children find, produce, prepare, taste, serve, experiment and share food. Children eat daily. As a result, this concrete experience with food has a significance that makes the study of food and related subjects easier for them than most of the more abstract studies with which they are confronted.

Whenever possible, the units will come to life more if cooperative projects and demonstrations are arranged with the School Food Service supervisor to be carried out in the school dining room or the School Food Service preparation center.

This project has been generally regarded nationwide as a pioneer effort in nutrition education for the elementary grades. These units have been prepared and tested by several elementary teachers, elementary supervisors, and School Food Service supervisors. For this reason the style of writing and the tense of verbs will vary from one project to another. Attempts to make these units conform to a consistent pattern detracted from their spontaneity.

Publication of this material has been made possible through the encouragement and foresight of Wade D. Bash, Chief, School Food Service Program, Ohio Department of Education. Mrs. Mary Waddel, School Food Service Supervisor, and Miss Ruth Hudson, Elementary Supervisor of the Ohio Department of Education, collaborated with other contributors in the development of this much needed material who are recognized at the beginning of the specific units for which they have been responsible. The cooperation of Mrs. Maxine Putnam, Director of Instruction, Sylvania City Schools, in developing these units is gratefully acknowledged. To Mrs. Mary Beth Keller, Art Teacher, Sylvania City Schools, go plaudits for the attractive and appropriate illustrations between units including the cover of this publication. This material was

edited by Raymond M. Lilly, Deputy Chief, School Food Service Program, Ohio Department of Education.

* * * * * *

If this material proves helpful to elementary teachers and stimulates them to develop their own units in nutrition, it will have achieved its major purposes.

* * * * * *

## BASIC NUTRITION CONCEPTS

The basic nutrition concepts are listed as follows:

1. Nutrition is the food you eat and how the body uses it.

   We eat food to live, to grow, to keep healthy and well, and to get energy for work and play.

2. Food is made up of different nutrients needed for growth and health.

   All nutrients needed by the body are available through food.

   Many kinds and combinations of food can lead to a well-balanced diet.

   No food, by itself, has all the nutrients needed for full growth and health.

   Each nutrient has specific uses in the body. Most nutrients do their best work in the body when teamed with other nutrients.

3. All persons, throughout life, have need for the same nutrients, but in varying amounts.

   The amounts of nutrients needed are influenced by age, sex, size, activity, and state of health.

   Suggestions for the kinds and amounts of food needed are made by trained scientists.

4. The way food is handled influences the amount of nutrients in food, its safety, appearance, and taste.

   Handling means everything that happens to food while it is being grown, processed, stored, and prepared for eating.

The above information was taken from the November-December, 1964, issue of **Nutrition Program News** under the heading **Basic Nutrition Concepts—Their Use In Program Planning and Evaluation** by Mary M. Hill, Ed.D., Nutritionist, Consumer and Food Economics Research Division, United States Department of Agriculture.

# Nutrition and the Pre-School Child

## NUTRITION AND THE PRE-SCHOOL CHILD

Marion Jackson
Nutrition Consultant
Cincinnati, Ohio

Because this was a pioneer project and there were no guidelines to follow, it was thought best to begin with the Basic Nutrition Concepts already set forth.

Most women with families to cook for feel that they know a little about nutrition. It was necessary to find some common understanding with which to start discussions, something that would be practical for all, that would form the groundwork for future growth but would not bore the parent with background information. It meant selecting a plan that would adequately interest all so as to involve them in the discussions.

Present research points toward recipes and food demonstrations as effecting the greatest carry-over into the home for this type of group. Give-away materials for the parent and child to use for reference are considered essential. A simple, colorful, inexpensive example was found to be "Eat the 1, 2, 3, 4 Way" from the National Dairy Council. "Food for Young Children" is also a good item.

We then began looking for a film to spark interest in the parents' meetings. The requirement of the film seemed simple enough: it should be nontechnical, it should be short and to the point (no longer than fifteen minutes), it should incorporate a discussion of the four basic food groups (this is the newest approach and the one used in our materials). It would be nice in color and we would like it to have a bit of zip or humor. The Visual Aids Department told us about some new films that had just arrived. In this group we found "Eat Well, Grow Well" produced by Crown Films. This is a delightful picture showing the influence children have on one another. This film is not technical; it deals with the four food groups and it is less than fifteen minutes long. We began with this film.

Meetings for parents were initiated with a simple introduction to the film and followed with a discussion of the uses of the four food groups in the body. If at all possible, we brought out a sample of a Type A lunch so that they could see how attractively it was presented to the children and with what care it had been planned and prepared. We carefully pointed out that something from **each** of the four food groups had been included **each** day in **each** lunch.

We stressed the fact that the lunch is an important part of the program and asked the parents to talk to the children about it.

At this point in the program we paused and allowed each parent to tell about her family. There were many families with five to twelve children. We encouraged these parents to discuss any difficulties they had in getting their children to eat certain foods at home. The teacher and teacher aide could tell the parents how the children ate at school. In many cases, children were eating better at school than they had been at home. Cooked vegetables and eggs seemed to cause the most frequent problems. We exchanged ideas for preparing these foods so that they would be more generally accepted.

Following this, we talked about marketing practices and shopping hints to save time and money. This feature was an outgrowth of the first few meetings where questions were asked about the use of dry skim milk and soft drinks.

"Eat the 1-2-3-4 Way" was distributed at the close of the discussion of the four food groups. Food Stamp Information and the recipe sheets were distributed at the close of the meeting. In several cases Food Stamp users volunteered information about the plan. All users who commented were well pleased with their added buying power.

**COMMENTS:**

**Attendance** at the various groups differed but **participation** in the discussions was good.

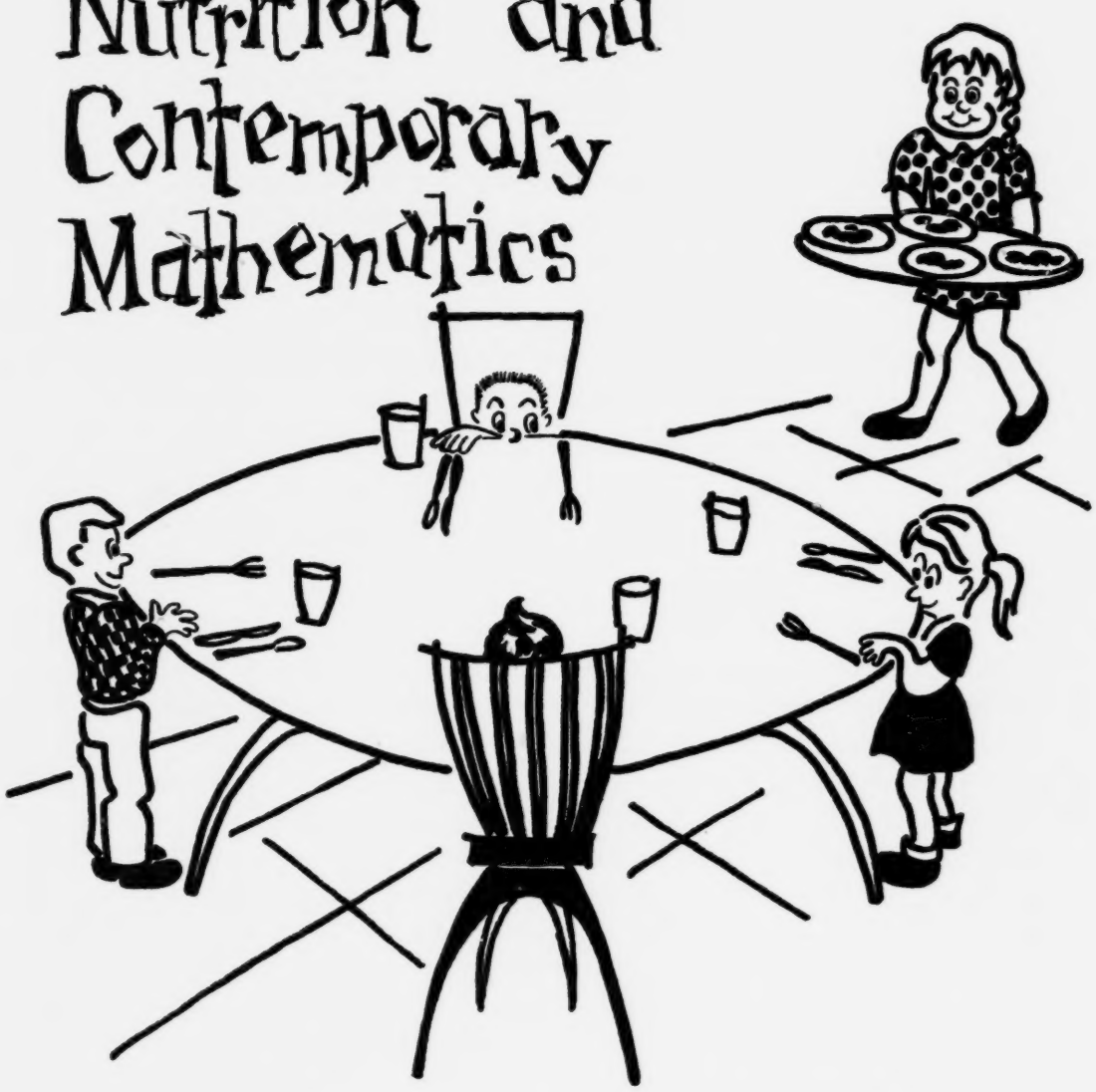
**Observing** at snack time and at lunch time in the various centers as free time permitted was most helpful, especially if this could be done before the parents' meeting.

**WAYS IN WHICH THE SCHOOL LUNCH SUPERVISOR CAN LEND ASSISTANCE:**

1. It would be helpful if there could be a brief job description.
2. Any work done in the classroom involving the School Lunch Supervisor should be planned ahead and scheduled so that the children would be prepared and so that it would not interfere with regular schedules. It might help, too, if this resource person were made known to the head teachers early in the program.

3. Unless groups could be consolidated in some way the Food Demonstration would be expensive and hard to handle for so many centers. It is advisable to involve women themselves in some way in the food demonstrations.
4. Fruit juice should be used, not fruit drinks.
5. Some parent leaders served refreshments during the meeting. This practice had a tendency to distract from the purpose of the meeting.

# Nutrition and Contemporary Mathematics



Miss Gwen Young
Kindergarten Teacher
Somerset School
Somerset, Ohio

# NUTRITION AND CONTEMPORARY MATHEMATICS

Mrs. Margaret Beard
Elementary Supervisor
Perry County

**AIM:** To combine contemporary mathematics and the study of nutrition at the kindergarten level.

To develop positive attitudes toward School Lunch and new foods.

**CONCEPTS:** To be healthy, we need different kinds of foods from the four food groups every day.

Our food comes from plants and animals.

We learn to like new foods. (Never say "don't like." Say, "I haven't learned to like it yet, but I'm trying.")

Since much of mathematics, on the kindergarten level, consists of understanding mathematics vocabulary, we stressed this aspect in combining the units. Throughout the unit, we used every opportunity to compare: size of food (larger, smaller); amounts (we need **more** milk, **fewer** meat servings, you need **less** food than your **biggest** brother); time (sweets **after** meals, wash hands **before** cooking; we will have a snack **later, when the hands of the clock are here).** The mathematics concepts of into—out of, over—under, on top—underneath, and left—right were strengthened as we discussed charts and film strips. We also used the term food "sets", rather than food groups, and called them Sets "A," "B," "C," "D." This approach provided many opportunities to discuss the number of servings of food eaten from a particular set, and how many more were necessary for today. Since this involved few number concepts over ten, it was suitable for kindergarten. One to one correspondence was used daily as the children set snack tables, along with some object counting ("We need five more napkins at this table"). Lastly, measurement concepts were introduced as we followed recipes for foods we prepared.

Preceding this unit, we had studied plants and pets. In each unit, we stressed that all living things need foods rich in minerals and vitamins. This study formed background for the idea that the foods we eat come from plants and animals and can be grouped into four main sets. The class spent four days discussing and defining the four sets.

For example:

**Set "A"--Milk and Milk Products** (we included several kinds of cheese). What are milk products? Can you name some? If you need four servings per day, what four would you choose? Where do we get milk? We used the American Dairy Association poster-pictures, "Milk from Farm to Family." There was so much child interest that we planned a visit to a dairy farm to see the silos, bulk tank, pipeline milkers, and cows as a culminating activity.

**Set "B"—Meat and Meat Products** (to simplify, we eliminated the meat substitutes such as dried beans, but included eggs—they do hatch into chicks). Where do we get pork? Can you name other meats we get from pigs? (Not hamburger, in spite of the name.) As the various types of meats were discussed, we looked at pictures of farm animals (SVE—Society for Visual Education).

**Set "C"—Fruits and Vegetables.** We named our favorites. On this day, we made cranberry relish, which was served the next day in cupcake papers along with crackers, but not milk, since the acid flavor makes milk taste "funny."

**We did:** Sort and wash one package of berries, grind in food chopper.

Cut two oranges into quarters, grind (Do not peel).

Cut two unpeeled apples into quarters, grind.

Mix in about two cups of sugar, set aside to ripen.

Teacher will need to taste this—Kindergartners don't care for tartness. More sugar and/or apples may be needed. Because we had made the relish, we found it surprisingly "delicious."

**Set "D"—Cereal Grains.** All kindergarteners love cereals (influence of TV?), but were surprised to learn that they are made from grains. We made a display showing the raw grain, such as wheat, rice, oats, dried corn, and the cereal made from that grain.

We also baked bread, using white flour and wheat germ. Each child formed a small loaf, plus enough for the school staff. After baking and buttering the loaves (used mother's help here), the children delivered a small loaf to each teacher, and enjoyed his own loaf at snack period.

On the fifth day, students trimmed pictures of foods torn from magazines. Later, these pictures were pasted on four large blank charts taped on the wall (Sets, A, B, C, D). These charts formed the basis of several discussion periods in which children decided whether a food belonged in a particular set. (Example: What are pancakes made of? Where do we place a salad with ham strips?) The group decided to determine the proper set by the principal ingredient, and discovered that many times one dish could combine foods from several sets. We originated several games, using the charts. "What's Your Menu?", in which children selected foods from each set to serve for lunch, or decided how many foods had been served in the School Lunch meal, and selected another needed that day. Another game was, "My Mother makes _____, and it belongs in _____ set."

On another day, the School Lunch cooks talked to the pupils. Charts had been prepared for them, showing pictures of the day's menu. They explained how carefully they plan the menu to include all food groups, how long it takes to prepare the food, and the amounts that must be purchased for so many children. This unit requires advance consultation with and cooperation of the cooks.

Preparing foods for snack time proved a most rewarding experience. Gelatin was popular, in assorted flavors, plain or with bananas. Smearcase (old fashioned cottage cheese) was made by setting skimmed milk with rennet tablets, pouring boiling water into it to form the curds. We then drained it in a cloth. Sour cream and salt were mixed into the curds, and surprise—cottage cheese! We served dabs on crackers, with a shake of brown sugar, if desired. Shelling, cleaning and popping popcorn was especially interesting. A glass-topped popper was used. Tiny bits of finger foods such as cauliflower, peppers, cucumber, and cheese gave pupils an opportunity to taste without being overwhelmed by size of servings and to arrange the food "attractively."

Vocabulary enrichment was an unexpected bonus of the unit, for words such as ingredient and nutrition are not a part of the average kindergartner's understanding, and must be clarified for him.

## BIBLIOGRAPHY

While there are many films and filmstrips on nutrition available, almost without exception they are for older children. Many can be used, if the children are assisted in selecting appropriate parts, or if the filmstrip can be advanced past the frames that are too detailed.

From the American Dairy Association

**Milk from Farm to Family,** both the small booklet and the large pictures.

Lois Lensky's **My Friend, the Cow,** in paperback, with teacher's guide.

From Cereal Institute, Inc.

**Skimpy and a Good Breakfast**

**Judy's Family Food Notebook** (a little advanced for Kindergarten)

Wheat Flour Institute

Large chart, and small leaflet, **A Kernel of Wheat.**

Problem
Solving

## PROBLEM SOLVING IN NUTRITION

Miss Gertrude Ossinger
First and Second Grade Teacher
Bearfield Elementary School
Crooksville, Ohio

Our unit on nutrition started with a few questions posed by the teacher. The children gave the answers. Soon they were asking their own questions. This led to many discussions from which the answers were drawn. Here are a few samples.

1. Why do we eat? (Teacher)
   Answer—We get hungry.—Joe
2. Why do we get hungry? (Teacher)
   Answer—We have used up the food we ate.—Mark
3. How did we use the food? (Teacher)
   Answer—Our bodies used it for energy.—Jim
4. Then where do we get energy? (Teacher)
   Answer—Energy comes from the food we eat.—Jimmie
5. Do all foods give us energy? (Teacher)
   Answer—Yes.—Some children
   No.—Other children

There was a discussion in which one boy remarked "Potato chips, pop and candy just make you fat." Finally, we decided all foods are good but some are better for us than others. Pop, candy and potato chips do give us quick energy but they have too many calories for some people. (We had a couple of children who were overweight and on restricted diets by their doctor's orders). Thus, we carried on our unit from day to day.

### BONE AND TEETH-BUILDING FOODS.

We began by finding which foods are needed for building certain parts of our bodies. Here we listed milk, butter, cheese, cottage cheese, buttermilk, and eggs. We discussed the amount of milk needed by each child. Some said, "3 glasses," others "1 quart." In mathematics, we had a unit on measuring. We used a water glass, a measuring cup, a pint and a quart bottle and our one-half pint milk cartons. We "discovered" the difference between 3 glasses and 1 quart. We found out how much mother might be giving us in

other ways, such as in puddings, rice, gravies, creamed dishes, on cereal and in ice cream.

While we were measuring our milk intake, we decided to find how much food we had on our plates at school. We borrowed a big serving spoon from the kitchen and tried filling it with liquid for such things as applesauce and gravy. It held approximately one-fourth cup. Then we scooped up raisins, green beans and other bulky foods. We found it held ½ to ⅔ of a cup. Some days we tried to determine the number of cups of food we ate at lunch. It was a little surprising. We had quite a time trying to figure how much we ate in a piece of cake. Joe said, "It sure won't go in any measuring cup." He was right. It wouldn't! From this measuring, I believe the children have a better understanding of one-half cups, one-half pints, pints and quarts than we have had before on second grade level.

## MUSCLES AND MUSCLE-BUILDING FOODS

Muscles! Everyone wants big muscles. So next came muscle-building foods. We listed the following: beef, pork, chicken, turkey, fish, eggs and rabbits, squirrels, ground hogs, opossums, pheasants and ducks. (Parents like hunting and fishing.) Also, we listed wheat, corn, oats, rice, cereals, bread and crackers.

At this time we had another discussion concerning whether to add cakes, cookies and pies. We finally decided that these foods were not really necessary and they were made from flour which comes from wheat so we didn't list them. The children had a "ball" with this part of the unit because of the many kinds of boxed cereals. I didn't know there were so many!

## MINERAL FOODS

Raisins! Raisins! We had a raisin party and this led to the question,—"Why should we eat raisins?" We talked about minerals which our bodies need. This was difficult for the little ones but someone said that on TV there is a man who talks about minerals and vitamins. He says, "Take Geritol." (The cooks gave us a big bowl of dry raisins and we spooned them out to each child.) They loved this because it was a treat and it happened during school time just before a recess. All but 2 of 40 were eating raisins when school was dismissed. Spinach was not served but next year we will try to include it. We ate many vegetables so we decided that we were getting most of our minerals.

## VITAMINS

Vitamins! Vitamins! Pills & Liquids! One little girl asked why we had to take vitamin pills. Some children said they didn't take them because they could get all their vitamins from their food. So after much discussion and "discovering" that vitamins are either already there or added to bread, milk, cereals, and butter, and that all fruits and vegetables contain vitamins they decided it was easier to eat them than to take them. We made a poster showing a bottle of liquid vitamins and one of vitamin pills and a spoon. Then we found pictures of 3 beautiful baskets of vegetables and fruits. The vitamin pills and liquids were in the upper right corner—with the others placed to the left and below. The caption said "Vitamins! Which Way is More Fun?" About this time we received frozen orange juice, a United States Department of Agriculture—donated commodity and we really "drank vitamins" as one boy put it.

## TIME OUT! THE SAP'S A'RUNNING

Children came to school asking about buckets hanging on trees. Maple syrup time was here. So we talked about gathering sap and boiling it down. I had pictures of sugar camps which we put on bulletin boards.

We found it took approximately fifty gallons of sap for 1 gallon of good maple syrup. I took some maple syrup (from our visit in New Hampshire) to school and everyone "tasted" it. We talked about how pioneers made maple syrup and gathered wild honey for their sweets. We decided that pioneers had to work hard for their food and that sweets were very difficult to get. We also found that these people had very few different foods to eat while we have many, many kinds.

About this time, we received another U.S.D.A.-donated commodity, honey, in our kitchen so we all had honey on bread or hot biscuits. It was a sticky, tricky task to serve each child but we accomplished it. Most of them wanted seconds.

In summarizing our unit we achieved these things!

## WE INTRODUCED THE FOLLOWING NEW FOODS:

Ripe olives, honey, maple syrup, rice and raisins. In our lunchroom we found that if we served these things from a large bowl after the children had their trays and were seated they would try more foods. They felt they were getting something extra. Rice was very

popular in the first and second grade rooms. Nearly everyone had "hands up" for rice when they saw me coming with the bowl. It was cooked in milk and sugar and sprinkled lightly with cinnamon. Honey and ripe olives were passed the same way. Also, we passed big plates of sliced onions and bowls of lettuce on hamburger sandwich days. Pickles were on their trays so they could fashion "dagwoods" or "fancy" sandwiches. This they loved! Celery and carrot sticks were served often and nearly everyone ate them. Many children learned to eat foods that they never had eaten at home.

We evaluated our Type A lunches by checking to see if we were receiving the four basic foods at each meal. Some talked about their meals at home and what they needed or did not need. Some mothers called to find out how some foods were prepared or seasoned. In all it seemed to be a successful learning experience.

## MATERIALS USED

**The Little Engine**—Scott, Foresman.

**Little Bear and the Honey**—Scott, Foresman.

**The Big Honey Hunt**—Berenstein, A. (I can read it myself book)

**Little Red Hen and the Grain of Wheat**—Nursery Book

**Maple-Sugar Time**—Scott, Foresman, 5th grade—(I read it to them)

**Poetry**—from Rhymes for Fingers & Flannel Boards.

**The Apple Tree**

**Five Red Apples**

**The Baker Man**

**Sing a Song of Sixpence** (for honey, we were all queens or kings)

### Original Poem Composed as a Group

For teeth and bones and hair like silk:
We must drink lots of milk.
Then cheese and meat and eggs
For strong backs and sturdy legs.
If a strong body is your wish
Eat lots of meat, and eggs and fish.
Minerals, we need more and more
Eat fruits and vegetables galore.

Vitamins, Vitamins everyone
Are in fruits and vegetables—what fun
To eat them morning, night and noon
Instead of taking them from a spoon!
So eat all kinds of food at will
And you may never need a pill.
Get outside and play and run
In fresh air and bright sun.
Then you will grow up straight and tall
In almost no time at all.

## CORRELATION

These subjects were correlated with Problem Solving in our unit on Nutrition:

**Mathematics**—We measured amounts of food, dozens, and one-half dozens using eggs and number of cookies needed to serve our room. We always counted the number of lunch trays for our room and the number of extra milk cartons bought for recess. We learned about counting money and its value as we paid for lunches and extra milk.

**Reading**—We made wall charts each day as we found our answers. These were read and re-read. We found stories about foods and the teacher read stories about our foods.

**History**—In connection with pioneers, honey and maple syrup were studied. Also, we talked about the foods they raised and how these were kept for winter by drying or pickling.

**Geography**—We talked about where our fresh foods come from in winter months. Foods from other countries which we discussed were tea, coffee, pineapple, olives, coconuts, cocoa, and bananas. Here we utilized more **mathematics** in deciding how many miles they were shipped, also, how many pounds of ice might be used transporting fresh vegetables in big train cars or trucks.

**Art**—We made posters and colored "still life" pictures of plates of fruit and piles of vegetables. They made other pictures showing foods they liked.

**Languare Arts**—We formed sentences for the wall charts, making up riddles and giving a few clues about a new or strange food and letting everyone guess.

Example—I am round and brown.
I grow on a tall tree.
It has branches only at the top.
I have a face like a little monkey.

Answer—A Coconut.

**Spelling**—In writing our menu each day we learned to spell many basic words: milk, bread, butter, fish, cheese, carrots, celery, soup.

**Science**—We discussed the growing of foods. We planted seeds and watched them sprout. We planted trees to hold soil and vines to stop a bank from eroding.

**Safety**—We must be sure foods are pure (not dirty) and not spoiled. We talked about milk which was too old and about the proper storage of foods for later use.

**Music**—We sang songs about foods and working to obtain foods.

Examples—Get Along Little Dogies—taking steers to shipping points.

Old MacDonald Had a Farm

A Turkey Sat on a Backyard Fence

Helping Mother Bake a Cake

# Nutrition and Us

## NUTRITION AND US

Miss Jane McGinnis
Second Grade Teacher
McGuffey Elementary School

Mrs. Katie Von Thaer
Primary Supervisor
Warren, Ohio

Good nutrition means that the body is well-nourished by foods containing essential nutrients in the amounts needed, and further, that the body has put those nutrients to work. Nutrition, then, is a foundation for health.

**The President's Council on Youth Fitness** urges all schools to provide a comprehensive program of physical, health and safety education. Among the desirable outcomes which may be particularly gained for boys and girls through nutrition education in the elementary grades are the following:

1. Good habits of food selection.
2. A favorable attitude toward all foods necessary for health and growth, especially the protective foods available in the local community.
3. Ability to check one's food intake against a food guide.

An effective nutrition education program for elementary school children includes creating an understanding between the school and the home which will insure the cooperation of parents in helping the child practice in his daily eating what he has learned about nutrition. Sharing information about the child's food habits at home and at school can help strengthen the feeling of cooperation between parents and teachers that is basic to a successful educational program.

This particular unit followed the teaching of a science unit on animals. The concepts developed were:

1. Animals follow a definite pattern of growth.
2. Animals come from pre-existing animals and grow to be like their parents.
3. Animals have needs. Animals must have air, water, food, and a favorable place to live. (Special emphasis was given the concept: Animals must have food to live and grow.)

First we tried to discover why all seven-year old children were

not alike. We studied each other by discussing similarities and differences. We decided:

1. That some people grow fast and others more slowly.
2. That some children have larger bones and muscles than others.
3. That we grow to look like our parents.

An interesting bulletin board was arranged using snapshots of the parents as babies and adults and snapshots of the children as babies and seven-year olds.

**Teaching Nutrition in the Elementary School.** (pamphlet)
United States Department of Health, Education, and Welfare, Office of Education.

The next questions asked were "Who are you?" and "What are you?" We found that:

1. The human body is composed of many different cells.
2. Each organ has its own kind of cell tissue.
3. The cells are so small that you can't see them without a microscope.
4. New cells are made faster than cells are lost. (cuts, bruises, wounds, germs.)
5. As cells are added you become taller and heavier.
6. Growth and repair cannot take place unless cells are provided with chemicals they need from the foods you eat and drink.

(The book, **How Your Body Uses Food** by Albert Piltz for the National Dairy Council, Chicago, 1963, is an excellent, easily understood teachers' reference.)

The next question was, logically, "How can you remember to include all the important nutrients in your meals each day?" The concepts developed were:

1. There are four main groups of food.
    a. Milk and milk products
    b. Meat group including fish, poultry, eggs, cheese
    c. Vegetables and fruits
    d. Breads and cereals
2. We need a variety of foods every day.
    a. Certain foods are necessary to build bones and muscles.

b. Certain foods help us work and play.
c. Certain foods help to keep us well.

For two weeks we spent our health period making tally marks on check sheets prepared by a teacher.

| | Mon. | Tues. | Wed. | Thurs. | Fri. |
|---|---|---|---|---|---|
| Breakfast | | | | | |
| milk group | | | | | |
| meat group | | | | | |
| vegetable group | | | | | |
| bread group | | | | | |
| Lunch | | | | | |
| milk group | | | | | |
| meat group | | | | | |
| vegetable group | | | | | |
| bread group | | | | | |
| Dinner | | | | | |
| milk group | | | | | |
| meat group | | | | | |
| vegetable group | | | | | |
| bread group | | | | | |
| | | | | | |

At the same time the children were bringing in good colored magazine pictures of foods and sorting them into the four food groups. This helped them to become familiar with the specific value of these foods as the colorful boxes were labeled:

1. The milk group helps you have strong bones and teeth.
2. The meat group helps make bones and teeth.

3. The fruit and vegetable group helps keep you well.
4. The bread and cereal group helps you run and play.

## COMMITTEE

Later, we divided the class into committees of three and each morning the committee selected pictures from the boxes to assemble on the bulletin board a well-balanced breakfast, lunch, and dinner. Each child was responsible for one meal and it was labeled Bobby's breakfast, etc. The children had to work together so that they did not have the same foods for all three meals.

## CHART

An excellent chart from the National Dairy Council was posted nearby. It showed pictures of the foods in each group and how many servings a day were required. In the afternoon, the class evaluated the committee's choice of menu against the requirements on the chart. Then as a committee, they would decide how to correct their menu.

## CLASS BOOK — TALLY SHEETS

A class book was compiled with each child entering his corrected menu.

At this time, the tally sheets were reviewed in the light of the learnings they now had. Each child could see where he needed to improve his diet. The suggestion was made that in a wardrobe, a sweater cannot take the place of a skirt or a pair of pants. This is true of nutrients also—an extra supply of one cannot make up the shortage of another. For example: an additional glass of orange juice that supplies Vitamin C cannot take the place of a glass of milk that supplies calcium and protein.

## SPECIAL REPORTS

During this unit many special reports were assigned to the children. They read the stories and gave oral reports to the class. Some of the reports and the correlated visual aids are listed below:

1. **Milk for You and Me.** pp. 1-13
   National Dairy Council
   Filmstrip: SL 641 A-1 **The Story of Milk**
2. **Our Food—Where it Comes From.**
   National Dairy Council

a. pp. 2-9 Fruit

b. pp. 10-15 Vegetables
Filmstrip: SF 641 A-3 The Story of Fruits & Vegetables

c. pp. 16-18 Cereal
Motion Picture: MP641.5 A Bread.
Motion Picture: MP641.5 B Grandmother Makes Bread.
Filmstrip: SF 641 A-2 The Story of Bread.

d. pp. 19-21 Milk and Eggs
Motion Picture: MP637-C Milk (revised)

e. pp. 22-23 Meat and Fish
Motion Picture: MP 636.4 Where Does our Meat Come From?
Filmstrip: SF 641 A-4 The Story of Meat.

## CORRELATED WITH OTHER SUBJECT AREAS

Other content areas correlated beautifully with this unit:

1. In **science,** we studied how our bones and muscles work.
2. In **art,** we drew pictures of four of our favorite foods from each group. We titled these pages: Every day we need some of these foods to make bones, muscles, etc. Each picture was labeled: steak, pork chops, hamburger, roast beef, beef, etc.
3. In **language arts,** we wrote stories about foods, where they come from, and how they are transported. We learned to spell many words related to the unit. We collected our learnings and made individual scrapbooks.
4. In **social studies,** we set up a very complete grocery store. We studied advertisements, and then made our own ads for our store. We talked about labels on food products. We learned how food is grouped in a store—not the same way it is grouped for a study in nutrition. We talked about how food is processed.
5. In **mathematics,** we learned to make change as we played store. We also filled our showcase with examples of the many ways that food can be measured.

6. In **reading,** we gathered as many related library books as possible for independent use.
7. In **physical education,** we worked in pairs for dramatic play pantomiming the growing, cultivating, processing, transporting, and preparing and serving of food. The class guessed what was represented.

Now we wanted to know why a child should learn to eat many kinds of food. We decided that:

1. Boys and girls should eat a variety of foods to help insure the good nutrition that is vital to proper growth and development.
2. To be a fussy eater is an undesirable trait which creates difficulties for the person who prepares the meals.
3. There are many exciting flavors to be discovered in food if one will try them.

In answer to the question, "How can one learn to eat foods he thinks he doesn't like?" we decided upon the following:

1. Taste everything occasionally—as one grows up he learns to enjoy new tastes.
2. Eat small portions.
3. Eat a disliked food with a well-liked food.
4. Help prepare the food.
5. Have mother prepare the food in new ways.

## LETTERS TO PARENTS

Letters were sent home explaining our ideas. If the child ate a serving of some food he normally wouldn't try, the mother could fill in the form telling what the child's reactions were to the new food. Then the child was entitled to add his name to the "Growing Up" chart on the wall. This was fun for all!

Due to lack of space, we cannot go into detail about the other areas that were studied: They included:

1. How can we learn to start the day right with a good breakfast?
2. Do the school lunches meet the standards we have learned about?
3. How can we make mealtime fun? How can we make mealtime a good family get-together time?

4. What do we mean by good dental health?

There are unlimited teacher resources in this area of study. A few of those found most helpful in the preparation of this unit are:

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A Healthy Body

## TARGET: A HEALTHY BODY

Virginia Buckley, Teacher—Grade 3
Marion Smith, Music Teacher
Mary Kokinda, Cafeteria Supervisor
Helen Vollmer, Elementary Supervisor
Port Clinton, Ohio

### I. Introduction

The philosophy of education in the Port Clinton Elementary Schools, grades kindergarten through grade six is "To give individuals ideals of character and citizenship in a democracy; to put individuals in possession of the tools of knowledge necessary in our economic world; and to promote health, in order that they may achieve the greatest possible good for themselves, and become valuable members of society." It is necessary for the health instruction program to follow a pattern combining most of the following methods:

1) "Direct health instruction: in this area definite time must be set aside for the teaching of health.
2) Correlation: Many subjects, departments, and other phases of school life offer opportunities for correlating health instruction. However, when dependence is placed entirely on correlation through other courses, important areas of health are often omitted from the instruction program.
3) Integration: In this pattern, health is incorporated into large units of instruction.
4) Individual health counseling is especially important, and is essential whenever the need or needs of the individual student occurs."

### II. Procedure

The above guidelines were used in formulating our unit in nutrition to keep physically fit. The unit was created by the students, with the teacher's guidance. As it progressed for four months, it was used as the health core.

We began our nutrition unit the week of the World Series. The World Series always begins the first week in October. A baseball player was used to develop the understanding of nutrition.

Physical fitness was discussed.

1. What do we mean by physical fitness?
2. Why do we say a baseball player is "physically fit?"
3. Why is it necessary for a baseball player to be physically fit?
4. Should we be physically fit?
5. What can baseball players and we do to be physically fit?

During the discussion of the baseball player's physical fitness, these concepts were discussed: coordination, symmetry of the body and muscles for coordination. As the baseball player makes a complete circuit of the bases for a home run, so our blood makes a "home run", a complete circuit of our body, using the heart as the home-base.

In other discussions, these words are samples of words that were added to the students' vocabulary: balanced diet, energy, muscle, proportion, and nutrients as a root word for nutritious and nutritionist.

Twice a week, the third grade views "Airborne Television", MAPTI. One of the Television Science units was "Where Does Your Body Get Its Energy?" — "What Happens When We Exercise?" This was incorporated with our nutrition unit.

The Basic Foods were discussed. Charts were posted, showing the basic foods. Students also made charts. The Cafeteria supervisor of Port Clinton Schools, Mrs. Mary Kokinda, spoke to the class and told of the need for protein, vitamin C, carbohydrates, and fats in the daily diet. Mrs. Kokinda, a nutritionist, explained to the children how the Type A school lunch program is planned, and that proteins, vitamins A and C, carbohydrates, minerals, and fats are incorporated in the school lunch. The students had written their Sunday menus. These were read and discussed with Mrs. Kokinda.

In the discussion of the basic foods, breakfast foods—cereals—were evaluated. Cereal boxes were brought in to determine what nutrients were incorporated in each, and the per cent of nutrients. Also, the weights in the boxes, ounces and pounds were evaluated.

A science experiment performed by the class was the burning of nuts. This demonstrated how fats burn in our bodies

and give off energy to move muscles, the heart being the most important muscle. "Paul Revere's Ride" was read at this time to stress the importance of good muscle tone. This lead to the drawing of figures to show action.

The first day of the unit, "Casey at the Bat" was read to the class. Mathematics was brought into the discussion in the proportions of the figure of a person. The children found that the waist is at the halfway mark of the body's measurement. From the waist to the knee is about one-half the distance from the waist to the foot, or one-fourth of the whole body. The elbow comes to the waist, and the finger tip to the thigh (about one-half). The term "torso" with its proportion to chest, head, arms, and legs was discussed. A comparison of the children's weight in pounds and ounces and heights in feet and inches was made. The figures, which were made by the children, were dressed in appropriate clothing. This led to discussion of seasons and months.

The project was intended to be culminated and finalized with a play. However, as the first week in February was "Dental Health Week", the project was completed with this week. The playlet, which contained many of our project ideas, was taken from "The Instructor", **F. A. Owen Publishing Company,** Instructor Park, Danville, N. Y. August-September, issue 1966, page 56, and the title, "Assembly of the Month Club" "Better Breakfast Assembly" "If Foods Could Talk" by Ruth Nathanson, Music and Drama Coordinator for P.S. 75, Bronx, N. Y. Mrs. Floyd Smith, our music supervisor, took tunes from our music text, "Growing With Music", **Prentice Hall** and incorporated songs in the play. Puns were written by the children: **Lettuce leaf** you with this thought; If you **carrot** all for your health; You don't want to be **corn**fused; You can't **beet** eating foods from each of the four basic food groups each day; **Egg**sactly right! This exercise was followed with the chorus of "Drink Your Milk." The record "Chicken Fat" was played with a few boys demonstrating the activity.

During "Dental Health Week", J. B. Sevitts, D.D.S., spoke to the third grade concerning care for healthful teeth. Toothpaste and toothbrushes from Crest plus charts to tabulate daily routine care of the teeth and posters were given to the students. This is done each year through our Health Service with Mrs. Robert Kreilick, registered nurse and school nurse, as the supervisor.

## IV. Correlation

### Science

Experimentation with nut
Observation of weather
Observation of seasons

### Art

Designed booklets
All drawings for illustrations in booklets were individually created
Figures of People
Posters of four basic foods

### Music

Jingles sung to known tunes
Exercised to music of "Chicken Fat."
Dances—I Want to be a Farmer
Oats, Peas, Beans
Three Little Ducks

Gymnastic Relief to tune of:
Till We Meet Again
Smile Awhile

### Audio-Visuals

Filmstrips
Recordings
Films
Posters

### Language and Penmanship

Making booklets
Learning to spell the months of the year and the seasons
Studying health vocabulary words
Writing parodies and poems (creative)
Composing invitations to parents and classes in our school
Writing creative stories of good health practices

### Mathematics

Measurements
Ounces
Pounds
Feet
Inches

Per Cent of nutrients on cereal boxes
Fractions in proportions of figures (to show action)
Menu planning and analysis

## V. Evaluation

The students in the third grade learned many valuable concepts in nutrition for helpful living. The students had a great deal of pleasure while learning, thus making the unit of immeasurable value.

The playlet, "Eat a Better Breakfast" was given on February 1, 1967. Parents, kindergarten, grade one, grade two and grade three students, and the Catawba Island faculty attended the performance. The lesson on nutrition was well demonstrated, and the children in attendance were made aware of the need for good nutritious foods in a pleasing manner, a lesson none of them will soon forget.

### OUR PLAY

(Adapted From)

### A BETTER BREAKFAST

Group 1

If foods could only talk, the stories they could tell
How they can make you strong, how they can make you well.

Group 2

If foods could only speak, could they put on a show
To teach all girls and boys how to eat, drink, and grow!

Group 3

If foods could comes alive—Oh perhaps they can! Let's see.
Let's tiptoe in and listen as we turn the Magic Key.

Breakfast foods sing—

(Made up tune to rhyme)

Good morning to us! Good morning to us! Just look at them fuss!
Just look at those faces! They're really disgraces!
For milk they've no use; they hate orange juice
Good morning to us! Good morning to us!

They're late for the school bus.
No eggs for today, Throw cereal away.
Oh! This is no way to start a new day.

Egg 1 — Now just a moment there—you, Mr. Boy and you, Miss Girl

Egg 2 — Just wait! You're not going anywhere until you listen to us.

Egg 3 — Hold them! Don't let them get away!

Boy — But, but — We'll miss the bus if we wait.

Girl — I've got to go to school. I'm late.

Milk 1 — "But, but" nothing! All of us here, including myself, took a lot of trouble to come to you. So the least you can do is to listen to what we have to say.

Milk 2 — Just think of all the trouble we milks have had since we left the cow.

Milk 3 — We were milked by machine.

Milk 4 — We were pasteurized.

All Milks — We were all put into large metal tanks, then into bottles or containers, and packed into trucks.

Milk 1 — I went through a special process. I am condensed.

Milk 2 — They evaporated me.

Milk 3 — They ground me into powder.

Milk 4 — I don't even look like milk. I'm locked up in a custard.

All Milks — Just so you, Mr. Boy, and you, Miss Girl, could get all your vitamins. We're practically the perfect food.

Orange 1 — Good thing you said practically. We oranges have what you need to be perfect — vitamin C.

Orange 2 — We also had much trouble getting here.

Orange 3 — I was picked right off a branch.

Orange 1 — I was packed.

Orange 2 — I was crated.

Orange 3 — I went by train.

Orange 4 — I went by ship.

Orange 1 — I went by plane.

**Orange 2** — I was squeezed into juice, refrigerated, bottled.

**Orange 3** — I was cut into slices and put in a can.

**Song made up.**

**All Oranges** — Just so that you, Mr. Boy, and you, Miss Girl, could get your vitamin C and a perfect breakfast.

**All Cereals** — Hey, wait a minute! What about us? Children need cereals for breakfast, too.

**Cereal 1** — We were growing very peacefully in a grain field.

**Cereal 2** — When, wham! Bang! Down we were cut, put into threshing machines —

**Cereal 3** — Refining machines, cut up again, pounded, packed together, boxed.

**Cereal 4** — Then at last we were ready to be eaten.

**All Cereals** — But you, Mr. Boy, and you, Miss Girl, you want to throw us away. How could you?

**Tune** (1) "Don't Throw Your Cereal Away"
(Parody from "Don't Take My Horse Away"
from Growing With Music — Prentice Hall

(2) Crunchy Flakes — (Tune—Jingle Bells)

(3) "Chicken Fat" Record

(4) Gymnastic Relief to Tune of "Till We Meet Again"
"Smile Awhile"

**Egg 1** — You need us, too!

**Egg 2** — Eggs are pretty important.

**Egg 3** — Don't think we got here without any trouble, either.

**Egg 1** — We were laid by well-fed hens.

**Egg 2** — Selected carefully.

**Egg 3** — Boxed and marked A.B.C.; small, medium and large. Song parody on "He's a Jolly Good Fellow."

**Milk 1** — Let's run away from Mr. Boy and Miss Girl and never come back.

**Egg 1** — I'm with you. Let them grow pale and sickly.

**Orange 1** — Let them stay small and be tired all the time.

**Cereal 1** — Yes, let them.

Boy and Girl — Wait! Wait! Please.

Boy — We're sorry. We think you are all very good.

Girl — Please give us another chance. I want to have a good skin and shiny eyes and lots of energy.

Boy — I want to be strong enough to play baseball and football and go swimming.

Girl — I don't want to catch colds and be sick.

Boy & Girl — Please, good foods, won't you be our friends? We need you.

Foods (Put heads together as if in conference) — Okay, but you must sing this promise with us.

Good morning to all!
Good morning to all!
We'll grow strong and tall. )
We'll eat breakfast gaily, ) Made up tune to rhyme
Have good foods daily, )
For this is the way
To start a new day.

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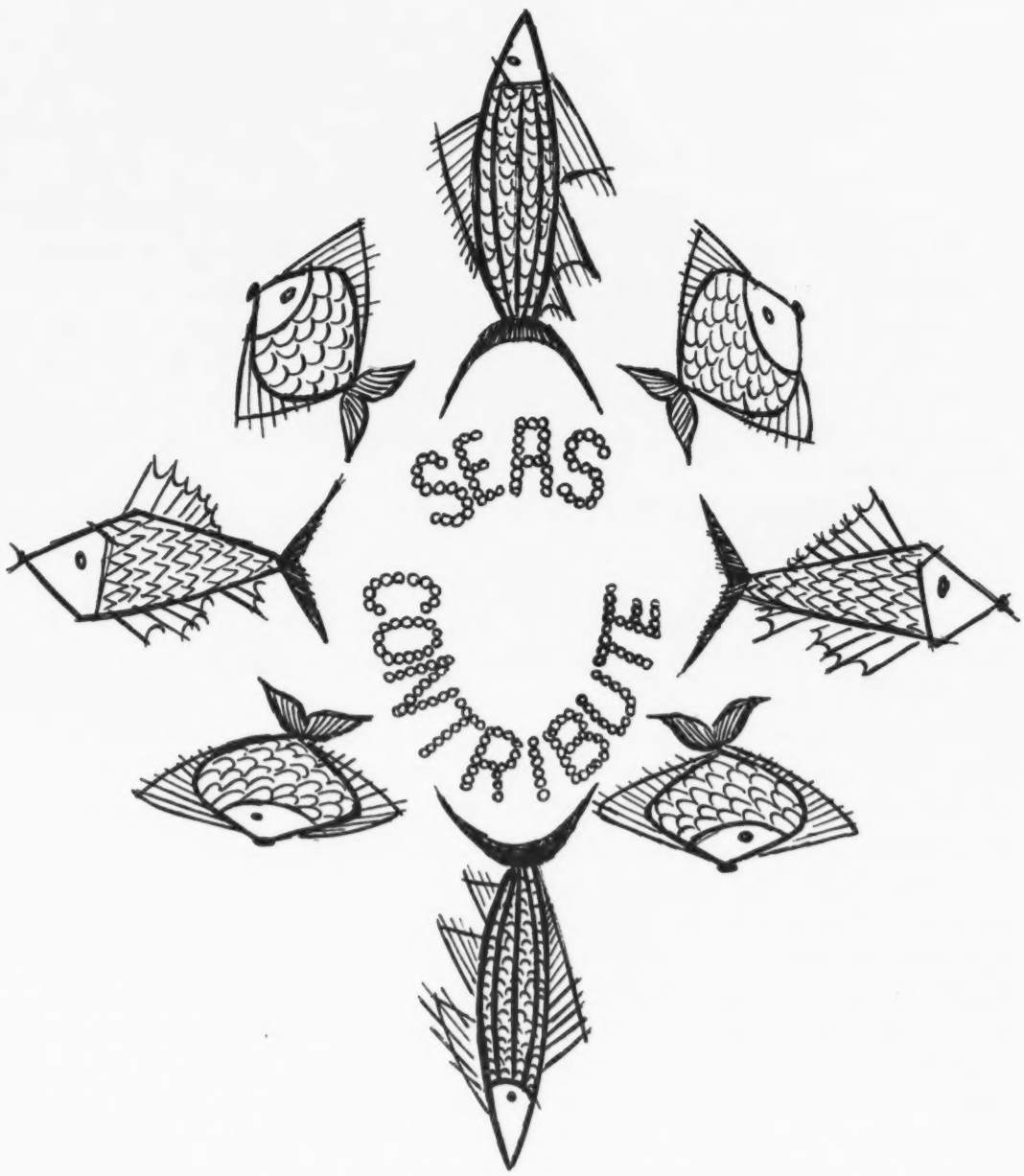
SEAS

# THE SEAS CONTRIBUTE

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## I. INTRODUCTION

In our present "Space Age" it would seem that pupils are much more familiar with advances in that area than in other scientific studies. We have explored most of our land surfaces and have made tremendous strides in farming and conservation. However, when two-thirds of the people in the world went to bed hungry last night, and population increases would seem inevitable, I feel that we will eventually turn to the seas for help in this problem.

Little is known to the average person of the importance of the seas. Fish Protein Concentrate (fish flour, known as FPC) has the highest source of protein with which to feed the hungry people of our world. Food from the seas—fish and seaweed—along with soy beans is a possible salvation for the hungry.

For the above reasons, and others, I chose to gather widely scattered source information in order to teach this unit. Much time, writing, reading, and planning are necessary as the study of the seas is still in comparative embryonic stages and answers are elusive.

The unit was introduced by bringing several books to class for the pupils to browse through, and by briefly explaining that seaweed is a highly useful plant named "algae" and is found in many things. After the shocking announcement that derived seaweed products are in chocolate milk and ice cream the teacher then asked, "If we are to study the seas, what would you like to learn?" Each child listed a number of questions which were grouped and studied by the teacher. Meanwhile, more books were brought to school, art work was begun, and the teacher read to the pupils a few minutes daily during the first week.

## II. AIMS

The aims are to:

Overcome environmental prejudices and the reluctance to try new foods. (Whale, octopus, and seaweed are commonplace foods in the orient.)

Make our first year of "new mathematics" an integral part of a new unit.

Correct some erroneous beliefs. (Whales are NOT fish—drinking milk with a fish meal is perfectly safe.)

Acquaint pupils from inland "Appalachia" with the types of plants and life found in the seas. (Plankton, seaweed, bivalves, and mammals.)

Study our last frontier on earth.

Enlighten in a new subject area. (Heretofore the seas were generally geographical locations.)

Emphasize the important foods obtained in quantity from the seas. (Fish are high in protein content and contain vitamins and minerals. FPC can prevent nutritional deficiencies in underdeveloped nations.)

Acquaint pupils with marine farming and its future. (Oysters are cultivated, seaweed is harvested by barge cutters, by hand, and with rakes, and salmon are raised and transplanted to alien streams.)

Familiarize the pupils with the many foods and products currently processed from the seas which are only a minute part of future products and tonnage. (Oysters, clams, turtle soup, seaweed salt, and whale meat.)

Educate pupils in the benefits of medicine and farming.

The Indians taught the Colonist to use fish as fertilizer. Fish fertilizer is used in poultry food.

A fungus found in the Mediterranean produces antibiotic activity.

Many people owe their lives to the antibiotics produced by pharmaceutical companies.

Derived seaweed products are in aspirin tablets, calamine lotion, toothpaste, shaving cream, sulfa suspensions, and others.

Give the pupils a lively interest subject and pride in being the ones to gain the new learning. (PUPILS enjoy giving parents news).

## III. TEACHER—PUPIL PLANNING

Teachers referred pupils to sources for oral and written reports.

Pupils decided to whom they could write for specific information. (U.S. Agencies, drug companies, fish processors, and food companies.)

Teacher showed film on the sea.

Combined efforts produced charts and maps to further undertakings.

Pictures and clippings were collected, and books were brought to school.

Committees were assigned for art work and reports.

A discussion of community resources led to a trip to the nearby U. S. Fish Hatchery, Hebron, Ohio, and fishing in Buckeye Lake where on-the-spot dissection took place!

## IV. ACTIVITIES

Pupils visited the U.S. Department of Interior Fish Hatchery at Hebron. This made the letter from the Oregon processor regarding salmon farming more meaningful. Salmon are raised on salmon pellets beginning with 1,200 fish per pound eating 1/32" size pellets.

Pupils had a "tasting party." Volunteers tasted broiled eel, octopus, sardines, smoked oysters, seaweed crackers, rice cakes with seaweed, whale meat, seaweed sheets, and seaweed seasoning salt. Foods were obtained by mail from California and New York.

Pupils learned to handle chopsticks given each pupil. Rainy day recesses were spent in a chopstick game using snack foods. There is widespread use of the chopsticks in the Orient where seafoods are common in daily diets.

A frieze was made by the pupils. The committee in charge gave the boat a pipe-cleaner mast. The fish were of macaroni, rice, and beans glued to cardboard for stability and reglued to the frieze. Fishing lines were bead strings. Seaweeds were cut fabrics. Chalk and crayon completed the frieze and bulletin board.

Fish were dissected. Pupils who had watched the cleaning of fresh-water fish were surprised to learn that fish have hearts. They learned that breathing is the most important difference between man and fish.

A chart was made of terms and new words, some of which were baleen, fathoms, marine, migration, fins, gills, plankton,

bivalves, kelp, sargasso, predator, agar, algae, suspension, tide, stagnant, spawn, chemical process, vertebrate, and tentacles.

The teacher drew a chart of the fish exterior and fish interior. It was labeled.

The pupils worked "new mathematics" problems using facts from the school lunch program, information from a Newark, Ohio, fish store, and from learnings of the unit. Examples: If Kelp is $350 per ton, what is the cost of 1/5 of a ton? How deep is 100 fathoms where haddock live? The school buys 6 boxes of 6-pound fish sticks for Fridays. How many pounds do they buy? What is the cost for Friday at $2.98 per box?

The pupils doubled and tripled the number of recipes using fish.

In art, they made the frieze and a bulletin board as a committee. They made recipe holders by gluing a small wooden triangle onto a square piece of wood, then gluing the snap-type clothes pin onto the triangle. After the glue set, the entire holder was painted with enamel paint, allowed to dry and decorated with individual designs using very small artist's paint brushes. They also enjoyed crayoning, painting, and finger-painting fish and sea scenes for mounting and posting in the room.

The pupils wrote letters to manufacturers of fishery products, drug companies, food manufacturers who use derived seaweed products, government agencies, and thank-you letters. The response was gratifying. Many companies sent samples of fish meal, fish solubles, fish oil, canned salmon, salmon pellets, pearl-like shell products, and information leaflets. The replies were warm and enlightening. Many echoed my opinions that the seas are a future source of foods and that pupil education on the subject is important. The pupils compiled booklets keeping any and all work related to the unit.

Lists were made of food fish, mammals, bivalves, kinds of seaweeds, seaweed products, and fish living at different depths. Example: Algin is a derived product of the giant kelp found off the coast of California. The kelp floats by means of float bulbs and is harvested by a large mowing machine operated from the front of a barge. Algin is used in cheese, ice cream, sterilized cream, bakery icings, salad dressings, puddings, fountain syrups, terramycin and penicillin suspensions, anti-acid tablets, aspirin com-

pound tablets, toothpaste, shaving cream, wave lotion, shampoo, auto carpeting, tires, rubber pants, wall board, decals, butter cartons, milk containers, paints, ceramic glazes, etc.

The pupils discussed fish with peculiar habits and oddities. Examples: Eels spawn in the Sargasso Sea and the parents die. The elvers know whether they are European or American and swim toward the home continent in a year or more. The males live in the mouths of the rivers in the ocean while the females live their lives in inland rivers, lakes, and streams. Years later they join the waiting males in the Sargasso Sea.

Sea catfish males carry the eggs and baby fish in their mouths for six weeks.

The growth of many fish never stops. One can tell the age of a fish by the rings in the scales as you would read the age of a tree.

The bitterling lays her eggs in a mussel's gill chamber thus avoiding the job of hatching her eggs.

Some fish can change color as the need arises.

Fish suffocate in air.

Fish have no eyelids.

Recipes using fish were brought to school, read and discussed, and used in new mathematics problems. Well-balanced meals were planned for people living in Oregon and Virginia using the resource sea foods of the area. In Oregon they might have a meal of salmon patties (eggs and crackers), peas with Kelpco seasoning salt, buttered potatoes with Kelpco, ice cream (algin) and bakery cupcakes (algin in icing).
The pupils worked the teacher's crossword puzzle involving unit learnings.

Where Menhaden Fish are caught — tentacles remind us of **arms.**

## SUMMARY

The teaching of the unit was very rewarding from the standpoint of both the teacher and pupils. As a teacher I was delighted and amazed at the many things I learned as we went along. It was stimulating to me. I feel that it is a constructive undertaking for those with time and patience.

Interest ran high throughout the unit. The pupils were pleased with the new learnings. They enjoyed the committee

work and the responsibilities delegated to them. They were eager to share, very curious, and willing to go the extra mile. Some of the timid pupils forgot themselves in their enthusiasm.

I feel that the important parts of teaching the unit were the understandings and knowledges gained. There are major national and international implications in this subject. Many major food companies are interested. They have their own seaweed subsidiary plants and are currently engaged in processing. The Menhaden Fish Companies will undoubtedly have their domestic fishing boats active year round which will make maximum use of their vessels and equipment. Eventually it seems a certainty that processing plants will be constructed along the shores of many nations. This will benefit the millions of malnourished people and the entire world.

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FOOD
FROM THE
U.N.

## FOOD FROM THE UNITED NATIONS

Miss Ruth Shea,
Lloyd Elementary School
Austintown, Ohio

Mrs. Betty Glade,
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My fifth grade class made a very intensive study of the United Nations. Having developed an appreciation for the locations of the member countries, their topography, natural resources, government, and educational background, the children became very eager to learn about agriculture in these member countries and the foods their people eat. This interest in the unit was demonstrated when we studied foods and nutrition in a series of science lessons.

To discover the relationships of foods to a specific country the class used encyclopedias, reference books, stories, and the information they received from the various embassies. To get as realistic a picture as possible of foods in other countries we used films and film strips. We viewed material on Central America, South America, Alaska, Hawaii, China, and Japan. The children learned that people eat different kinds of foods and that the kinds of foods are dependent upon the natural elements. They became more aware that different plants require different types of soil and climate. A most satisfying experiment was germinating cotton seeds and observing the growth of a pineapple plant.

Letters requesting samples of food products were written. In reply they received coffee beans, polished and unpolished rice, cacao pods, Brazil nuts, and a coconut. From the grocery store shelves they discovered many foods which had been imported from other countries. The products, grown and prepared in widely separated areas, emphasized the increasing dependence of people upon one another for the necessities of life.

In their research and study the class learned that people in many countries, because of varied reasons, were not getting the foods which are necessary for proper growth and for preventing certain diseases.

Excitement and interest prevailed the day our School Food Service Supervisor came to visit us. The dietitian explained that stopping a feeling of hunger was not the only purpose of food. She reinforced and strengthened their knowledge of selecting

foods from the four basic food groups each day. Together they made a set of rules to observe in building good food habits. She stressed the importance of obtaining the proper amounts of the necessary foods by planning or choosing well-balanced diets. She brought with her the school menu for the following month. She explained how the menus were selected for their nutritional values. Interest climbed when one student suggested that they review the menu to discover the foods that may have come from countries other than the United States.

Their library table proved to be a center of interest. It contained a display of cook books containing recipes from other countries. The class discovered that much of our cooking is similar to that of other countries. This, they concluded, is due in part to the scientific advancements in communication and transportation.

The teacher realized that children would soon lose interest if they merely discussed foods and balanced meals. The basic outcome of the unit was, therefore, having the pupils translate what they had learned into action. One who experiences learning through seeing, touching, tasting, and smelling is more likely to visualize, identify, and associate as he reads. This we proved by actually preparing in school three favorite recipes from three countries. Lamb stew, as prepared in Australia, was a favorite with everyone. Risgrot, the traditional rice porridge of Norway, was simple to prepare and enjoyed by a majority of the class. Raclets, very popular in Switzerland, were fun to make and very tasty also. They are made by melting a large piece of cheese over an open fire (we used a hot plate) and then put on bread.

The class was eager to share its experiences with others by having a United Nations luncheon which would include foods prepared from recipes around the world. The faculty and all other school employees were invited. Everyone was challenged to try unfamiliar foods as a kind of adventure. The luncheon provided a valid reason to discuss and practice courtesy and good manners, and learn the duties of hosts and hostesses.

The room decorations and exhibits helped to make the day a festive one. The twenty-five foot mural depicting food festival days around the world was most informative and colorful. A smaller bulletin board carrying the idea that all men are brothers was appropriate for the occasion. The guests enjoyed browsing around the room after the luncheon, observing the various charts, booklets, mobiles, maps, flags, and the displays of many articles and souvenirs from some of the member countries.

The five large papier-mäché ice cream cones used for table decorations caused much conversation. The green pistachio ice cream would be made with pistachio nuts from Europe and Asia, chocolate ice cream made with cacao from Central and South America, pineapple from Hawaii, and vanilla with vanilla beans from the tropical countries.

The results of this part of the unit were most satisfying. The children continued to mention and discuss with pride the food they had provided for the luncheon and the foods that they liked best or at least tried.

The entire unit was successful because the children were working with something real. They were exposed to activities in all curriculum areas. They have a deeper understanding of ways in which environment affects man's food, and how, in turn, man has modified his environment to fit his food needs. Also they possess a knowledge of ways in which man benefits from an exchange of food products.

AROUND THE WORLD
33
DISHES...

## AROUND THE WORLD IN THIRTY-THREE DISHES

Amber Thwing,
Sixth Grade Teacher
Ethel Mae Burt, Principal
Robinwood Lane School
Boardman Local Schools

Anna B. Hunt,
Elementary Supervisor
Mahoning County Schools

It is difficult to say exactly when the Nationality Dinner was initiated. Perhaps in the early fall, after the sixth grade pupils had made a visit to the Nationality rooms at the University of Pittsburgh. Or perhaps it was a little later as we were studying the countries of Europe when many of the children became aware that these were the countries from which their ancestors had come. Each pupil then began to choose the country which would be "his." Whenever possible the country of one of his ancestors was chosen. Of course there is only one Italy, or one Scotland, or one Norway so that other choices had to be made. But everyone seemed happy with his "country."

The pupils decided that they would like to know more about their "country" than their textbooks presented. Then the search was on for information. Similarities and differences of the countries were discussed. Food and clothing began to emerge as topics that held interest.

Throughout the remainder of the year in addition to all other work in the social studies class, the pupils were busy collecting all the information they could about their chosen countries. This activity entailed going to the school library, the public library and hunting up books and magazines at home. Oftentimes a child would come to school laden with books obtained from the public library or perhaps he had obtained permission from a relative to use certain books. These books not only had information to be used for his country but very often the books would contain material that could be used by another child. The happy look on the face of the child who had found a book which would help his classmate was heart warming indeed.

At the same time that we were carrying on the research work in social studies, we were studying about balanced diets in our science class. We were discussing what the average child in the

United States had for breakfast, lunch, and dinner. We were finding what foods made up a balanced meal and the value of certain vitamins and minerals in our diets. It was decided that it would be interesting to find which of our countries provided balanced diets for their children. It was interesting to note that the children of Denmark had more balanced meals than did their contemporaries in Yugoslavia. It is equally interesting to note that while the children of the United States do eat balanced meals, they much prefer pizza to pot roast. Of course, the pupils discovered that the Chinese child has an overdose of rice with little or nothing else to balance it. This problem is not unique with the Chinese, as many children of Southeast Asia have the same problem. To obtain breakfast in parts of the Philippines a child sometimes must climb a tree and pick a coconut.

After studying the eating habits of children of thirty-three countries, our children concluded that the diet of American children included the four basic food groups necessary for a balanced diet, whereas the children's diet of many other countries usually did not contain these basic foods. The children were surprised and disturbed as well as enlightened by this knowledge. The children made resolutions stating that each would try to eat better balanced meals. They concluded that in our land of plenty there was little reason for people to be undernourished. The children came to the conclusion that the advantages that we have in our wonderful country are not enjoyed by people of many other lands. A greater appreciation for our country was developed.

The highlight of all this research and learning came in May when a dinner was served to invited guests. Plates were heaped with food representative of thirty-three countries (the number of pupils in the class). The guests may not have known what they were eating when they ate polenta from Yugoslavia, or golumbic from Poland, or le pais from France, voi from Finland, kolocky from Czechoslovakia or aeblekage from Denmark but they seemed to enjoy it and had fun trying to guess what was being eaten. Flags of different countries were used as place cards. Dolls also decorated the tables.

The food was made possible by interested mothers. A committee of mothers prepared and served the dinner. After the dinner, the pupils, dressed in colorful costumes, some of which had been brought from the old country, gave reports about the food that would be eaten for breakfast, lunch, dinner or supper. Some people do not eat three meals a day as we do. It was discovered

that people's needs and wants differ from one country to another but that their basic needs are similar.

## CORRELATIONS

There were days when the activities of this unit were interwoven through every area of the curriculum (except mathematics). New skills were sometimes learned, at other times they were reinforced through use.

**Science:**

Food and its uses
Four basic foods
Vitamins
Language Arts skills

**Art:**

Creating designs for covers for booklets
Making posters, lettering for posters
Drawing maps — political, products
Developing maps — relief (papier-maché)
Collecting flags for each country
Decorating the tables

**Music:**

Writing original songs — **The Vitamin Alphabet** (included)
Learning to sing for an audience — **America the Beautiful, Star Spangled Banner**

**Audio-Visuals:**

Opaque Projector—used for pictures, maps, graphs and pages from books.
Overhead Projector—used for maps, graphs, summaries, etc.
Enlarged maps of each country (opaque projector for outline)
Slides
Filmstrips, Movie

**Language and Penmanship:**

Learning to use words effectively in forming a good sentence, paragraph and story, both oral and written.
Making booklets for each individual country.
Creating maps, facts, stories, poems, pictures, original drawings.
Cutting clippings from the newspapers and magazines.

Invitations written to guests, which included County Superintendent, District Superintendent, Supervisors, Principals.

Invitations written to parents to attend the program which came after the dinner.

## EVALUATION

1. **Attitudes and Understandings**

   Willingness to work stemming from genuine interest

   Greater personal feeling of helpfulness through planning together

   Planning, sharing information, learning to be a leader or a follower.

   Realization that some people excel in one area while others excel in another.

   Realization that it is the responsibility of everyone to contribute his part if a venture is to be successful.

2. **Skills**

   Reading — skimming for specific information, reading in depth for more detailed information.

   Growth in vocabulary

   Proof reading for spelling and punctuation

   Map reading, use of keys

   Library skills — note taking, reference (credit given for source)

   Organizing, outlining, writing (notebooks)

   Preparing for speaking in front of a group

   Presenting information to an audience. (Exact information, clearly stated, and presented in an interesting manner.)

## THE VITAMIN ALPHABET

(Tune — "Auld Lang Syne")

You say you know your A B Cs from A to X Y Z,
But do you know your A B Cs can grow upon a tree?
You'll find an A within a yolk or in a green string bean,
You think that this is just a joke for A's cannot be seen.



2

Or B, or C, or D, or E, or Gee! There're many more.
You'll find them buried in the ground or at your grocery store.
So listen while I try to say exactly what I mean
By an alphabet of vitamins — those things that can't be seen.

Now did you ever stop to think about a vitamin
It can't be seen and can't be felt, it's neither fat nor thin.
It can be found in fruits and eggs and milk and cheese and meats.
In vegetables, yellow and green, and fish and bread and sweets.

It is important that each day you eat three balanced meals
To make you grow, and laugh and play and really kick your heels.
So if you eat well-balanced meals, you soon will come to see
The vitamins that make you strong are absolutely free.

In the U.S. it's obvious most children are well fed,
But in China all the children get is fish and rice and bread.
On South Pacific Islands they eat fish and fruit and nuts
While natives of the jungles live on meat and coconuts.

Their diets are not balanced and they suffer much disease
Because they do not know about the Vitamin A B Cs.
So don't you wish that we could go and let these people know
About the vitamin alphabet that helps us live and grow.

Written by Child and Mother

SCIENCE
MATH
NUTRITION

## SCIENCE, NUTRITION AND MATHEMATICS

Miss Mary A. Sands
Somerset Elementary School
Somerset, Ohio
Mrs. Margaret Beard, Supervisor
Elementary Education
Perry County

**Objectives are to:**

Develop an understanding of what our bodies are made of.

Understand how our bodies can use nutrients from the food we eat.

Increase knowledge of the nutrient requirements of our bodies.

Increase knowledge of the kinds of nutrients in foods.

Develop awareness of the food groups.

Stimulate interest in good eating habits.

Impress children with the importance of an adequate breakfast.

Help children understand the meaning of, the necessity of, and how to plan a balanced diet.

Show how mathematics is used in calculating energy used and energy required by our bodies, energy supplied by foods we eat, amounts of various nutrients in the foods we eat, and costs of food we eat.

Make comparisons of the nutrients and energy supplied by the food we eat with the nutrient and energy requirements of our bodies.

Integrate mathematics into the study of nutrition in various ways.

Use "new math" methods in as many ways as possible.

**Questions we wanted to answer:**

What is my body made of?
What happens to food after I eat it?
How does food become a part of me?
How does food change into cells?
What are cells?
What are calories?

How many calories does my body use?
What are nutrients?
What foods have the calories and nutrients that my body needs?
How can I know if I am eating enough of the right foods?
How much food do I eat? How much does my family eat?
How much does food cost?

Group reports were made concerning specific questions which arose in class discussion.

**Concepts Developed:**

Our bodies are composed of varying amounts of more than forty different chemical elements (from booklet **How Your Body Uses Food** by Albert Piltz).

Cells are the "building blocks" of our bodies.

There are different kinds of cells in our bodies. They are made of soft (or fluid) protoplasm with a tougher cell wall around it. (What about bone cells?) Most kinds of cells have a nucleus. The protoplasm of most kinds of cells is largely water with nutrients and other chemicals dissolved in it. So, our bodies are about two-thirds water.

Cells receive nutrients from the blood as it passes by in the capillaries. The nutrients come from food that is eaten and digested, and are picked up by the blood from the intestinal tract. Undigested food is eliminated as waste from the body.

Our bodies use the nutrients from foods we eat for growing and repair or replacement of our muscles and other body proteins, for heat, and for energy to move.

The kinds of nutrients our bodies need are proteins, carbohydrates, fats, vitamins, and minerals.

Nutrients our bodies use are contained in various foods, most of which are grouped into four food groups.

The food groups are: the milk group, the meat and eggs group, the fruit and vegetable group, and the bread and cereal group.

We will have a balanced diet if we eat the recommended amounts of foods from each of the four food groups each day.

A balanced daily diet should include an adequate breakfast that supplies one-fourth to one-third of the daily dietary needs.

A good breakfast includes fruit or fruit juice, milk, cereal, bread and butter, and eggs or meat (frequently).

All foods supply energy which is measured in calories.

We can calculate the approximate number of calories we use each day and the number we need each day according to our sex, size, age, and activity.

We can determine the number of grams of protein and the amounts of other nutrients we obtain each day from the food we eat and compare these amounts with recommended amounts for our age and sex.

**What We Did to Answer Our Questions and Solve Our Problems**

Our nutrition-mathematics unit was initiated by a study of Unit 6, Eating for Good Health, in **Science, Health, Safety** MacMillan —Life Series 4. This involved the use of two study worksheets, discussion, and finding answers to questions concerning what the body is made of, how the body can use food for energy and growth, and the food groups. A list of science-nutrition words was compiled from Unit 6 and references sources. The children used the science text, encyclopedias, and the dictionary to help find and write meanings of words in the list. (This could have been done in the form of making a science-nutrition-mathematics dictionary of new words used in the unit.)

The children each made a chart record showing what foods they ate each day for three days. These were checked to determine whether the children had foods each day from each of the four food groups and were used to calculate the number of calories and grams of proteins the food supplied for a day. The children later made up menus for two days which would supply the minimum number of servings needed daily from each food group. (These also were to have been checked for total number of calories and total number of grams of protein per day.)

A series of five nutrition-mathematics worksheets were prepared containing scientific, nutritional and mathematical information and mathematical problems to be solved. The problems involved reading mathematical information from pictures and charts, writing numerals, multiplication, addition, subtraction, division, estimating, counting, measurement calculations, finding costs of foods and calculating the cost per member of the family or the whole family. Comparison was made of the cost of a lunch at school with the same lunch at home and the cost of milk at school was compared with the cost of milk at home.

In order to determine the amount of food energy in calorie used in a day by an individual, each child kept an account for one day of time used for eating, sleeping, playing, reading, walking, and studying. These figures were multiplied by the number of calories used in one hour for each activity (found in chart, page 11, **How Your Body Uses Food,** Albert Piltz), then multiplied by the child's weight to show the number of calories used by a child in a day. We compared the number of calories used in a day by a child with his calorie intake from the food eaten and with his calorie requirements according to age, sex, and size as found in information charts or by calculating from information found.

The children formed groups to make studies on specific topics: proteins, carbohydrates, fats, minerals, and vitamins. Another group worked on cells. A few guide questions were set up on each topic and the working group searched for ways to show or explain what was found about the topic.

**Additional Activities and Learning Experiences:**

Made posters to show how recommended number of servings of various foods can supply the protein requirements of boys and girls and to show foods with the same amount of protein. (Nutrition Handbook.)

Collected or made pictures of foods that supply protein in our diet.

Made posters of carbohydrates and fats telling what these nutrients are and do for the body and collected or drew pictures of foods that supply them.

Made posters showing how milk and other food supply minerals in our diets.

Made posters giving information about and collected foods supplying vitamins A, B, C, D.

Made models of molecules (using colored gum drops and toothpicks) of the sugars glucose and fructose; the vitamins A, thiamine (B), C and D; and the amino acids glycine and alanine.

Made pictures of different kinds of cells and clay models of some of them.

Made drawings showing how cells receive nutrients from the blood as it passes through capillaries by the cells.

Made bulletin board displays showing ideas we were studying and food posters.

Read a booklet, **It's Always Breakfast Time Somewhere** and used its accompanying poster.

Displayed booklets, pamphlets, leaflets, library books, etc. on our science table for reading and seeing.

Read books, encyclopedias, and other resource materials for information.

Made notebooks.

Looked at several filmstrips. (See list later)

Saw the film, **Better Breakfasts, U.S.A.**

Sang a song, **The Vitamin Alphabet.** (Included in the unit immediately preceding this one.)

**Correlations**

**Science**

What the body is made of—How food is digested—How the cells receive nutrients from foods—What cells are—What nutrient elements are (proteins, carbohydrates, fats, vitamins, minerals)—Kinds of foods—Food groups.

**Health**

A balanced diet for good health—What a balanced diet is—Eating, digestion and elimination habits—Good habits and healthy teeth.

**Mathematics**

Reading information from pictures, charts, graphs and tables, using the four operations—Reading, writing, understanding numerals—Using common and decimal fractions (and percentages)—Keeping records (account of time)—Making surveys (could extend into statistics)—Using measurements (cup or glass, pint, quart, ounce, pound, gram and calorie)—Comparing costs of more expensive and less expensive foods—Estimating and figuring costs of food and meals — Geometry and fractions (shapes — circles, squares, triangles, rectangles—cutting sandwiches, modeling shapes of foods and cells)—Comparing time in various parts of the world.

**Language Arts**

Reading textbooks for information and answers to questions—Using encyclopedias and other references for information on special topics—Reading source materials for enrichment and ideas—Reading captions on filmstrips—Writing complete statements to answer

questions and definitions of terms—Writing reports and giving oral reports—Outlining—Making a dictionary of new words—Listening to stories, reports, and poetry—Discussion—Writing stories and poems.

**Social Studies**

Reading stories and discussing foods eaten by people in other countries—Finding what time it is in other countries when we eat and vice versa.

**Art**

Drawing pictures of foods—Making posters and charts—Modeling cells and foods from clay—Making models of molecules—Cutting shapes from sandwiches—Decorating notebooks—Drawing pictures to show blood capillaries passing among cells.

**Music**

Singing the **Vitamin Alphabet Song**—Others

**Field Trips**

Visiting a bakery, dairy, or other food source.

**Resources and Reference**

**Books**

**Science, Health, Safety,** MacMillan—Life Series 4
**Science in Your Life,** Heath—Elementary Science 4
**Science for Today and Tomorrow,**
**Living Today,** McCormick Mathers—Health, Science, Safety 5
**Health in Action,** The Economy Company—Grade 4

**Encyclopedias**

Brittanica Junior
Young Peoples Science Encyclopedia
Compton's

Booklets, Pamphlets, Leaflets

**How Your Body Uses Food,** Albert Piltz, National Dairy Council, Chicago, Illinois, 60606
**Nutrition Handbook**—National Dairy Council
**Nutritive Value of Foods**—Home and Garden Bulletin No. 72, U. S. Department of Agriculture
**Choose Your Calories**—National Dairy Council

**Your Calorie Catalog—Accenting Protein**—National Dairy Council

**A Boy and His Physique**—National Dairy Council

**A Girl and Her Figure**—National Dairy Council

**Food Value of 1 Quart of Milk**—National Dairy Council

**Food Science and How It Began,** Barbara Evers, National Dairy Council

**Cooking Is Fun,** Miriam Brubaker, National Dairy Council

**Breakfast's Ready**—National Dairy Council

**Food Your Family Needs Every Day**—Ohio Department of Health

**Can We Eat Well for Less**—National Dairy Council

**Ventures, Voyages, Vitamins,** Helen Flynn, National Dairy Council

**It's Always Breakfast Time Somewhere,** Mildred Letton, National Dairy Council

**Quality Milk—It's Importance to You and Your Community**—National Dairy Council

**All Through Growth**—Continental Baking Co., Home Economics Department, Box 731, Rye, N.Y.

**How Much Do You Know About Bread,** American Bakers Assoc., 20 North Wacker Drive, Chicago 6, Illinois

**Food For Fitness**—Leaflet No. 424, United States Department of Agriculture

**Good Snacks Help Protect Teeth**—Ohio Department of Health

**Diet and Dental Health,** American Dental Assoc., 222 East Superior St., Chicago 11, Illinois

**Food For Red Blood**—Ohio Department of Health

Posters, Charts

**A Guide to Good Eating** (with Teachers Guide—Leaflets available)

**The Four Food Groups** (with Teacher's Guide)

**It's Always Breakfast Time Somewhere** (with Teachers' Guide) (These three and others available from National Dairy Council)

Nutrition Chart—**Food**—Denoyer-Geppert Science Series, Denoyer-Geppert Co., 5235 Ravenswood Avenue, Chicago, Illinois 60640

Films

**Better Breakfasts, U.S.A.**—Ohio Department of Health

Filmstrips

**How Food Becomes You**—National Dairy Council

**Judy's Family Food Notebook**—Wheat Flour Institute, 309 West Jackson Boulevard, Chicago 6, Ill.

**Skimpy and a Good Breakfast**—Cereal Institute, Inc.

**Grain from Farm to Table**—Cereal Institute, Inc.

**Food: Fuel for the Body**—Film Strip of the Month Club, 355 Lexington Avenue, New York, New York 10017

Teacher References

**Doing Better at Work and Play,** a Guidance Unit in Health and Science, Mrs. Helen B. Johnson, National Dairy Council

**Our Bread and Butter,** A Unit in Social Science and Nutrition, Mrs. Alice J. Carter, National Dairy Council

**Better Breakfast Activities,** Elementary Teachers' Guide, Cereal Institute, Inc., 135 La Salle St., Chicago, Illinois 60603

**Cereal Glossary,** Cereal Institute, Inc.

**Remarks**

The work in this project progressed as the unit was developed in Grade Four over a period of about four weeks. The unit should not be considered to be in refined form but is written in the hope that it can serve as a flexible guide and can present some ideas for a study of nutrition combined with mathematics in the intermediate grades or perhaps in grades seven or eight. Those using this unit may wish to revise it and therefore improve upon it, particularly in the mathematics phase. The worksheets contain problems with which fourth grade children need considerable help. Teachers may wish to develop problems which adhere more closely to grade level. Additional activities involving nutrition and more work on the mathematics phase could easily extend the working time of this unit to six weeks.

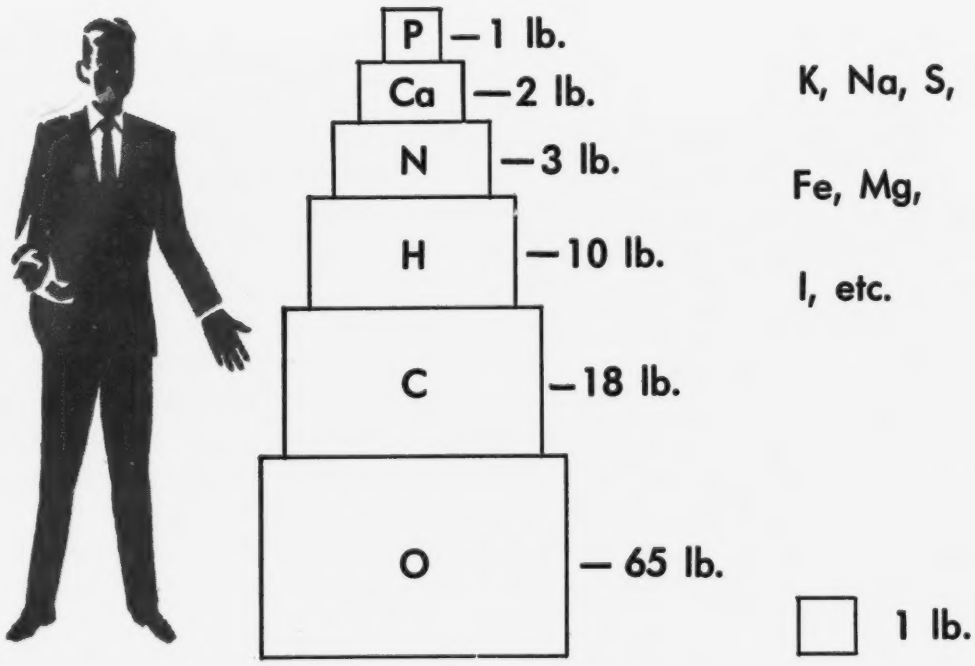
Science — Nutrition Words and Terms —

| | | |
|---|---|---|
| energy | salivary glands | iron |
| fuel | starch | copper |

| | | |
|---|---|---|
| nutrients | enzyme | iodine |
| enriched | stomach | sodium |
| restored | small intestine | calorimeter |
| fortified | pylorus | glycogen |
| cell | large intestine | cereal |
| transparent | appendicitis | nitrogen |
| protoplasm | elimination | niacin |
| nucleus | bowel movement | thiamin |
| plasma | allergy | riboflavin |
| dissolve | allergic | calorie |
| digestion | asthma | proteins |
| saliva | chemicals | amino acids |
| element | oxygen | fats |
| compound | carbon dioxide | carbohydrates |
| calcium | phosphorus | vitamins |
| | | minerals |

## NUTRITION MATHEMATICS

**What are you made of?**




If you weigh 100 pounds, the chemist says that your body has the weights of the elements in it that are shown in the picture.

## NUTRITION MATHEMATICS

### How You Use Food Energy

During each hour of your life, your body uses a certain amount of food energy. The amount of energy a food gives you, or the amount of energy your body uses, is measured by a **unit** called the **calorie.** This chart shows the **number** of **calories** you use in **1 hour** for **each pound you weigh.**

| | | | | | |
|---|---|---|---|---|---|
| Eating | 0.7 | Sleeping | 0.5 | Playing | 2.0 |
| Reading | 0.7 | Walking | 1.5 | Studying-Writing | 0.8 |

Keep an account for **one** day:

How many hours do you spend eating? _____
Reading? _____ Sleeping? _____ Walking? _____
Playing? _____ Writing or studying? _____

1. How many calories does each pound of you use in 1 day?

| | | | |
|---|---|---|---|
| Eating | _____ | Walking | _____ |
| Sleeping | _____ | Reading | _____ |
| Playing | _____ | Studying | _____ |

2. How many calories does your whole body use in 1 day?
(How much do you weigh? _____)

| | | | |
|---|---|---|---|
| Eating | _____ | Walking | _____ |
| Sleeping | _____ | Reading | _____ |
| Playing | _____ | Studying | _____ |

3. a)

What is the total number of calories you use in one day, doing the things named above? _____

b)

What is the number of calories a boy or girl your age and size should have each day? _____

c)

How many calories do you get in one day from the food you eat? _____ (Can you determine this from **one** of the days on the chart you made of what you ate?)

d)

Did you eat enough food to give you the number of calories your body needs each day? _____ Too many? _____
Too few? _____ How many too few, or too many? _____

## NUTRITION MATHEMATICS

**"A Foundation Food Guide"—Pre-'teens and 'teens (12-15)**

### TO PROTECT YOU IN KEY NUTRIENTS

**DAIRY FOODS group—4 or more glasses of milk daily—for about 4/5 of the calcium you need, for protein, for vitamins A and D, and for other minerals and vitamins.**

**MEAT, POULTRY, FISH, AND EGGS (or cheese, peas, beans, peanuts, nuts)—3 or more servings daily—for body-building protein, iron, and B vitamins. Boys need about 75 grams of protein each day. Girls need somewhat less protein than boys.**

**VEGETABLES AND FRUITS—5 or more servings daily—Include a leafy, green vegetable or a yellow one for vitamin A. Include a citrus fruit or tomatoes; or strawberries, cantaloupe, or raw cabbage for vitamin C.**

**BREADS AND CERALS—4 or more servings daily—(enriched, restored, or whole-grain)—for iron, 3 vitamins, and protein (especially when eaten with milk, meat, eggs, or cheese)**

**1. Estimate the grams of protein in each food you ate and listed on your 3 days. _____; _____; _____ Did you have enough protein in your diet each day? _____ One day? _____ Two days? _____ If you did not have enough protein any day, how much more would you have needed? _____ What additional protein foods could you have eaten? _____**

**2. Did you drink enough milk? _____ How much more would you have needed? _____**

**3. Did you eat the right kind and enough fruits and vegetables? _____ What others would you have needed? _____**

**4. Make menus for 2 days that would supply all the key nutrients.**

### CALORIES, NUTRIENTS

**1. Boys and girls (12-15) need about 33 calories of food energy for each pound of body weight. How can you find how many calories you need each day?**

2. Use this chart to help you with some problems about your calorie requirements and nutrient requirements.

| Nutrient | | | | |
|---|---|---|---|---|
| Protein, grams | 34. | 8.5 | 0.8 | 2. |
| Calcium, grams | 1.15 | 0.29 | .029 | .019 |
| Phosphorus, grams | 0.88 | 0.22 | .042 | |
| Iron, milligrams | 0.33 | 0.08 | 1.3 | .6 |
| Thiamine, (Vit. $B_1$), mg. | 0.33 | 0.08 | .12 | .06 |
| Riboflavin (Vit. $B_2$), mg. | 1.65 | 0.41 | .08 | .05 |
| Niacin Equiv., mg. | 8.75 | 2.16 | .3 | .6 |
| Ascorbic Acid (Vit. C), mg. | 14. | 3.50 | 16. | |
| Vitamin A, I.U. | 1500. | 375. | 380. | |
| Vitamin D, I.U. | 400. | 100. | | |
| Sodium, mg. | | | 4. | |
| Potassium, mg. | | | 459. | |
| Fats, grams | | | 2.5 | 1. |
| Carbohydrate, grams | | | 60.5 | 12. |
| Food Energy, calories | 670. | 168. | 242. | 60. |

a. If you drank 4 glasses (1 qt.) of milk in a day, how many calories of food energy would you need from other food sources?

b. How many slices of bread would have about the same number of calories as 3 apples (1 lb.)?

c. If you ate 6 slices of bread in a day, how many grams of protein would your body get from the bread?

d. How many grams of protein would you get from 1 qt. of milk and 6 slices of bread?

e. Which has more Vitamin C, 1 quart of milk or 1 pound of apples? How much do both together have?

## FIGURING COSTS OF FOOD

At school one day the lunch menu was:

Green Beans and Corn—Barbecue Beef on Bun
Mashed Potatoes—Gingerbread—Milk

Another day the menu was:

Beef and Noodles—Apple, Raisin, Carrot Salad
Prunes—Pimento Cheese Sandwich—Milk

1. a. Find what would be the cost of **one** of the above lunches for your family.
   b. How many are in your family?
   c. What would be the cost of lunch for one member of the family?
   d. Lunch at school costs 30 cents. Would lunch at home cost more than this amount? Less? How much?
2. a. How much does one quart of milk cost at home?
   b. How much would one pint of milk cost at home?
   c. How much would one glass (one-half pint) cost?
   d. How much does one glass (one-half-pint carton) of milk cost at school?
   e. How much would one pint of milk cost at school?
   f. How much would one quart of milk cost at school?
3. a. What is the cost of one loaf of bread at home?
   b. How many slices of bread are in a loaf?
   c. What is the cost of one slice of bread?
   d. Find how many slices of bread are eaten by your family in one day.
   e. What would be the cost of bread for your family that day?
   f. What would be the cost of the bread you ate?
4. a. Find how many glasses of milk your family drinks in one day.
   b. How many quarts?
   c. What is the cost?

**Evaluation, Culmination**

Evaluation was made through observation of the children at work, their completed work, and examination results. The children's attitudes in respect to willingness to work, interest and desire to learn, and working together in groups was observed. Completed work included various displays and reports of findings with discussions. All children completed notebooks which were checked and grades given. Questions on the examination given were mostly from the science phase of the unit.

Lettuce
Leaf You

# PUNS

**Now!**

**Lettuce leaf** you with
this thought. If you **carrot**
all about your health. And
don't want to be **corn**fused.
You can't **beet** eating foods
from each of the four basic
food groups every day.
**Egg**sactly right!

# NOTES